SCIENTIFIC PROCEEDINGS

ABSTRACTS OF COMMUNICATIONS.

Seventy-eighth meeting.

New York Post Graduate Medical School.

Vice-president Gies in the chair.

16 (1194)

Structure of antineuritic hydroxy pyridines.

By **ROBERT R. WILLIAMS** (by invitation).

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Experiments already reported have shown that hydroxy pyridine exists in two readily interconvertible desmotropic crystalline forms, one of which is able promptly to dissipate the acute symptoms of polyneuritis gallinarum. In order to ascertain the chemical structure of the physiologically active modification curative tests have been made with β hydroxy pyridine, α methoxy pyridine, α methyl pyridone, trigonelline, nicotinic acid, and betaine. On the basis of the results it may be concluded with reasonable certainty that the relief of the paralysis by such substances is intimately connected with a betaine-like ring.

That such a structure is likewise an essential feature of natural "vitamines" has been adopted as a working hypothesis. It affords a rational explanation of the instability of natural antineuritic substances and appears to conform to other previous observations. In this connection attention is called to the fact that, on theoretical grounds, the existence of betaine-like tautomeric modifications of oxy- and amino-pyrimidines and purines is not less probable than in the case of the corresponding derivatives of pyridine.

However, this assumption as to the structure of "vitamines" does not appear to be borne out by the more or less complete failure of several of the above synthetic compounds to protect birds against polyneuritis though capable of relieving the severe symptoms when once developed. No conclusion has been reached as to the cause of this apparent discrepancy.

Future work will take the direction of a search for similar desmotropism in the pyrimidine series.

17 (1195)

Quantitative chemical studies in spinal fluids.

By **R. L. KAHN** and **JOSEPHINE B. NEAL** (by invitation).

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Quantitative determinations of total, non-protein and urea nitrogen, creatinine, creatine and sugar have been carried out on spinal fluids of poliomyelitis and various forms of meningitis. Traces of ammonia, uric acid and cholesterol have also been demonstrated in these fluids.

With the exception of urea, which has been extensively studied by French workers,[1] quantitative studies in spinal fluids are comparatively meager, due undoubtedly to the fact that until recently, micro-methods not being available for these determinations, large quantities of fluid had to be used for any single chemical test.

The direct Nesslerization method for nitrogen determinations recently reported by Folin and Denis[2] has been with slight modifications adopted for the determinations of total, non-protein urea and ammonia nitrogen in spinal fluids. The total nitrogen in poliomyelitis is in the neighborhood of 25 mgm. per 100 c.c. In various forms of meningitis the total nitrogen was found to be considerably increased, extending from about 35 mgm. to 150 mgm. per 100 c.c. The non-protein nitrogen content is about 50 to 70 per cent. of the total nitrogen and urea, about 60 to 80 per cent. of the non-protein nitrogen. The determinations of am-

[1] Soper, W. B. and Granat, S., *Arch. Int. Med.*, XIII, 131, 1914, review the literature.

[2] Folin, O. and Denis, W., *J. Biol. Chem.*, XXVI, 473, 1916.